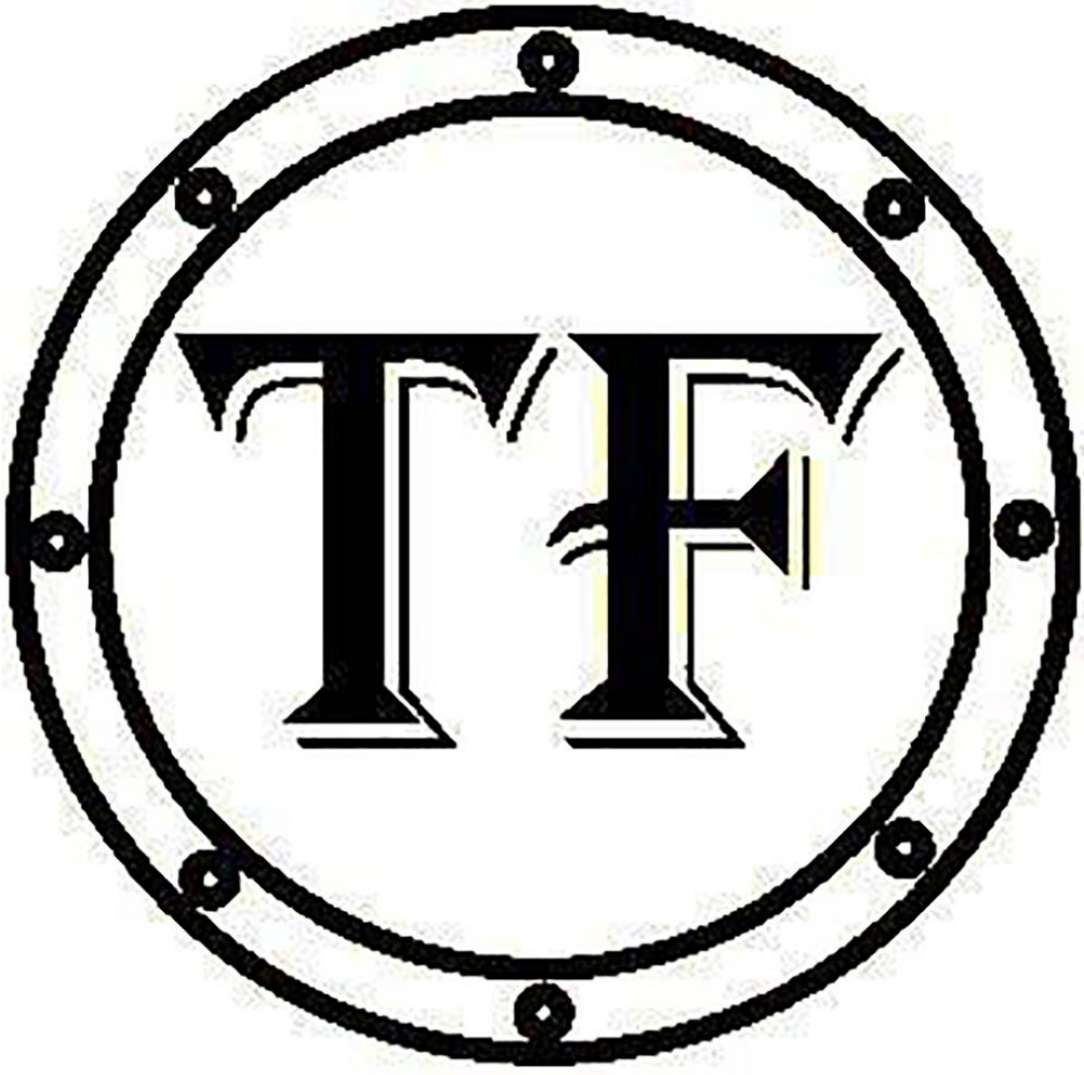
Slip-On Flange

Slip-on flange is a popular type of pipe flange designed to accept pipe into the bore/center of the flange for welding around both the Outer Diameter (OD) of the pipe and on the interior side of the connection. You may recognize them:



The slip-on flange is a simple and excellent alternative to a weld neck as it does not have a weld bevel, and therefore allows the pipe to be adjusted in length relative to its position of the flange.

The bore of the slip on will give ample amount of space for the matching pipe. This allows for enough working space for the welder and fabricator to make the connection.

This flange type is extremely common in lower pressure applications. Most slip on style flanges will have a hub, which will often appear similar dimensionally to a raised face. It can be furnished without a hub if space is limited and the application allows for a “ring style” slip on.

Although the hub style is more common when referring to a slip on, a ring style slip on without a hub still falls under the category of a slip on flange, and can be called out as you desire.

Slip ons in higher pressure classes are often made with the height of a lap joint for a better connection. If the hub height is not a concern and a lap joint is not readily available, customers will sometimes opt for a slip on made to a lap joint style with a machined hub.

Slip on flanges are more commonly found in lower pressure assemblies and become less utilized when a higher stress service calls for a superior connection to the piping assembly.

This is because a slip on style flange will accept a pipe with a fillet weld connection, whereas a weld neck flange will have a reinforced hub at the base and form a weld bevel connection directly to the butt weld end of a pipe. This tapered hub allows for stronger service in a mechanical stress environment.

Slip-on Flanges

Types of Slip-On Flange Welding

Slip-on (SO) flanges come in two main types: SO welding plate flanges and SO welding hubbed steel pipe flanges.

These flanges balance integral and lap joint flanges with a straightforward design and easy processing. Consequently, slip-on flange welding finds extensive applications in various fluid pipelines.

Raised Face Slip-On Flange

The raised face slip-on flange features a small protrusion on its bottom face. This raised face serves as a designated area for gasket placement during installation, enhancing the overall sealing performance.

RTJ Slip-On Flange

In the case of RTJ slip-on flanges, a small groove is precision-machined on the raised face section. This unique RTJ design is

intended explicitly for high-pressure applications, providing a compelling groove for gasket ring placement and ensuring superior sealing compared to the RF type.

What is a slip-on flange?

A slip-on flange is a type of pipe flange that slides over the pipe's end and is secured with bolts that align with pre-drilled holes.

It is designed with a slightly larger bore than the pipe to allow it to "slip on" easily before fastening. It is commonly used in low to medium-pressure systems.

What are the advantages of slip-on flanges?

The design allows for quick assembly without the need for complex welding or alignment, making them ideal for projects where time is a factor.

Slip-on flanges are typically less expensive than other flanges, such as weld-neck or blind flanges, due to their simpler design and manufacturing process.

When should I use a slip-on flange?

These flanges are not designed to handle high-pressure or high-temperature systems, so they are ideal for standard applications where pressure is not a concern.

When budget is a critical factor and the application does not require the strength and durability of more expensive flanges, slip-on flanges are a cost-effective option.

When should I not use a slip-on flange?

Slip-on flanges are not designed for high-pressure systems and may fail or leak under extreme pressure.

The design of the slip-on flange does not provide the same resistance to vibration as other flange types, like welded or socket weld flanges, which can lead to connection failure over time.

How do I install a slip-on flange?

Ensure the end of the pipe and the inside of the slip-on flange are free of debris. Slide the slip-on flange over the pipe end. The flange should fit snugly but not require force.

Rotate the flange as necessary until the bolt holes of the flange align with the matching holes on the pipe or pipe fitting. Insert the appropriate bolts through the aligned holes.

Tighten the bolts in a criss-cross pattern to evenly distribute pressure and achieve a proper seal.